IN THE CLAIMS:

1-7. (Cancelled)

8. (Currently Amended) A method for producing an electro luminescence device, comprising the steps of:

providing a compound semiconductor crystal substrate comprising a Group 12 (2B) element and a Group 16 (6B) element in a periodic table;

disposing a diffusion source on a front surface of the substrate, the diffusion source including an element converting the substrate of a ~~first conduction type~~ p or n conductor into the ~~one of the second conduction type~~ opposite n or p conductor;

forming a pn junction by heat treating and thermally diffusing the diffusion source; and

forming electrodes on front and rear of the substrate;

wherein the diffusion source disposed on the front surface of the substrate includes at least one of silicon and carbon, and comprises at least one of Cl, Br, I or alloy thereof ~~comprises a material including an element preventing forming of a defect compensating an impurity level which is formed in the substrate by the element included in the diffusion source during a diffusion process, or an element gettering impurity on the front surface of the substrate~~.

9. (Original) The method for producing an electro luminescence device as claimed in claim 8, wherein the defect compensating the impurity level which is formed in the substrate by the element included in the diffusion source, is a vacancy or a defect including the vacancy.

10. (Previously Presented) The method for producing an electro luminescence device as claimed in claim 8, wherein the diffusion source disposed on the front surface of the substrate comprises an element such that Gibbs' free energy of a compound which is formed by combining the diffusion source and impurity is smaller than Gibbs' free energy of a compound which is formed by combining a constitute element in the substrate and the impurity at a diffusion process temperature, or a material including the element.

11. (Previously Presented) The method for producing an electro luminescence device as claimed in claim 8, wherein the diffusion source is Al, Ga, In or alloy thereof.

12-13. (Cancelled)

14. (Previously Presented) The method for producing an electro luminescence device as claimed in claim 8, wherein the impurity is at least one of O, Li, Ag, Cu and Au.

15. (Cancelled)

16. (Currently Amended) The method for producing an electro luminescence device as claimed in claim 8, ~~Wherein~~ wherein the diffusion source is deposited over the front surface of the substrate under vacuum by any one of a sputtering method, a resistance heating method, and an electron beam method.

17. (Previously Presented) The method for producing an electro luminescence device as claimed in claim 8, wherein a heat treating temperature at the diffusion is 300°C to 700°C.

18. (Currently Amended) The method for producing an electro luminescence device as claimed in claim 8, wherein a thickness of the diffusion source before performing the heat treatment is 1,000Å to 10,000Å~~, preferably, 1,500Å to 5,000Å~~.

19. (Original) The method for producing an electro luminescence device as claimed in claim 18, wherein the diffusion source remains on the front surface of the substrate with a predetermined thickness after the heat treatment.

20. (Currently Amended) The method for producing an electro luminescence device as claimed in claim 18, wherein a thickness

of a remained diffusion source and a diffusion layer is not less than 100Å~~, preferably, not less than 300Å~~.

21. (Previously Presented) The method for producing an electro luminescence device as claimed in claim 17, wherein the diffusion source is Al or In, and the diffusion source is heat treated on a condition that diffusion time is longer than the one specified by a relational expression $Y= 2 X 10^{5}\exp(-0.018T)$, showing a relation between diffusion time Y and a heat treating temperature T.

22. (Currently Amended) The method for producing an electro luminescence device as claimed in any one of ~~claim 8 to claim 21~~ claims 8-11, 14 and 16-21, wherein the substrate is ZnTe.

23. (Currently Amended) A method for producing an electro luminescence device, comprising the steps of:

providing a compound semiconductor crystal substrate comprising a Group 12 (2B) element and a Group 16 (6B) element in a periodic table;

disposing a diffusion source on a front surface of the substrate, the diffusion source including an element converting the substrate of a ~~first conduction type~~ p or n conductor into the ~~one of the second conduction type~~ opposite n or p conductor;

forming a pn junction by heat treating and thermally diffusing the diffusion source; and

forming electrodes on front and rear of the substrate;

wherein the diffusion source is disposed on a substrate plane having plane orientation from which a flat plane is obtained after etching, and wherein before the diffusion source is disposed, the front surface of the substrate is chemically etched.

24. (Original) The method for producing an electro luminescence device as claimed in claim 23, wherein the substrate is any one of ZnTe, ZnSe and ZnO.

25. (Previously Presented) The method for producing an electro luminescence device as claimed in claim 23, wherein the substrate plane having the plane orientation from which a flat plane is able to be obtained after etching is (111)Zn plane, (001) plane, or (011) plane.

26. (Previously Presented) The method for producing an electro luminescence device as claimed in claim 23, wherein the substrate plane having the plane orientation from which a flat plane is able to be obtained after etching has an inclining angle within 10 degrees from (111)Zn plane, (001) plane, or (011) plane.

27. (Cancelled)

28. (Currently Amended) The method for producing an electro luminescence device as claimed in claim ~~27~~ 23, wherein the chemical etching is performed with etchant of bromic acid system or bromine system.

29. (Currently Amended) A method for producing an electro luminescence device, comprising the steps of:

providing a compound semiconductor crystal substrate comprising a Group 12 (2B) element and a Group 16 (6B) element in a periodic table;

disposing a diffusion source on a front surface of the substrate, the diffusion source including an element converting the substrate of a ~~first conduction type~~ p or n conductor into the ~~one of the second conduction type~~ opposite n or p conductor;

forming a pn junction by heat treating and thermally diffusing the diffusion source; and

forming electrodes on front and rear of the substrate;

wherein a film thickness of the diffusion source is from 5nm to 50nm.

30. (Original) The method for producing an electro luminescence device as claimed in claim 29, wherein a film thickness of the diffusion source is from 5nm to 20nm.

31. (Previously Presented) The method for producing an electro luminescence device as claimed in claim 29, wherein a treating temperature for the thermal diffusion is from 300°C to 550°C.

32. (Previously Presented) The method for producing an electro luminescence device as claimed in claim 29, wherein treatment time for the thermal diffusion is determined so as to have such a range that the diffusion source remains in not less than a predetermined thickness after the diffusion process.

33. (Previously Presented) The method for producing an electro luminescence device as claimed in claim 29, wherein the substrate is any one of ZnTe, ZnSe and ZnO.

34. (Original) The method for producing an electro luminescence device as claimed in any one of claim 29 to claim 33, wherein the diffusion source is Al, Ga, In, or alloy thereof.

35. (Currently Amended) An electro luminescence device comprising a compound semiconductor crystal substrate comprising a Group 12 (2B) element and a Group 16 (6B) element in a periodic table,

wherein the electro luminescence device is produced by disposing a diffusion source including an element converting the substrate of a ~~first conduction type~~ p or n conductor into the ~~one of a second conduction type~~ opposite n or p conductor on a front surface of the substrate; forming a pn junction by heat treating and thermally diffusing the diffusion source; ~~and~~ forming electrodes on both surfaces of the substrate~~,~~; and etching the front surface of the substrate before depositing the diffusion source; and wherein

the compound semiconductor crystal substrate has carrier density of from 1 X $10^{17}cm^{-3}$ to 5 X $10^{18}cm^{-3}$.

36. (Original) The electro luminescence device as claimed in claim 35, wherein the compound semiconductor crystal substrate has desired carrier density by doping determined amount of a Group 15 (5B) element in the periodic table.

37. (Previously Presented) The electro luminescence device as claimed in claim 35, wherein the substrate is any one of ZnTe, ZnSe and ZnO.

38. (Original) The electro luminescence device as claimed in claim 35 or claim 37, wherein the diffusion source is Al, Ga, In, or alloy thereof.

39. (Original) An electro luminescence device comprising a compound semiconductor crystal substrate comprising a Group 12 (2B) element and a Group 16 (6B) element in a periodic table,

wherein the electro luminescence device is produced by disposing a diffusion source including an element converting the substrate of a ~~first conduction type~~ p or n conductor into the ~~one of a second conduction type~~ opposite n or p conductor on a front surface of the substrate; forming a pn junction by heat treating and diffusing the diffusion source; and forming electrodes on both surfaces of the substrate, and

a depth of the diffusion is not less than 0.3μm and not more than 2.0μm from the front surface of the substrate.

40. (Original) The electro luminescence device as claimed in claim 39, wherein a luminescence center wavelength is from 550nm to 570nm.

41. (Previously Presented) The electro luminescence device as claimed in claim 39, wherein the substrate is any one of ZnTe, ZnSe and ZnO.

42. (Original) The electro luminescence device as claimed in any one of claim 39 to claim 41, wherein the diffusion source is Al, Ga, In, or alloy thereof.

43. (NEW) The method for producing an electro luminescence device as claimed in claim 18, wherein a thickness of the diffusion source before performing the heat treatment is 1,500Å to 5,000Å.

44. (NEW) The method for producing an electro luminescence device as claimed in claim 20, wherein a thickness of a remained diffusion source and a diffusion layer is not less than 300Å.

IN THE DRAWINGS:

Applicants are herewith replacing drawing sheet number 1 which contains Figures 1 and 2 with the drawing sheet attached hereto.